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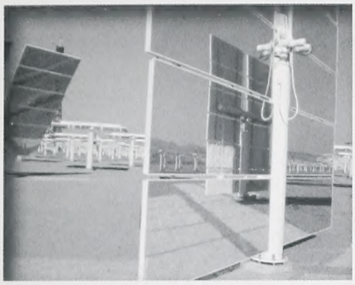

A Guide to Bringing New Electric Generation on Stream

New Power Generation in Alberta

Alberta
RESOURCE DEVELOPMENT

New Power Generation in Alberta

A guide to bringing new electric generation on stream

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INTRODUCTION

The *Electric Utilities Act* moves Alberta forward to development of an efficient market for power generation, based on fair and open competition. This new competitive industry is attracting developers and investors who see opportunities for new power generation in the dynamic and diversified Alberta economy.

New Power Generation in Alberta is designed to give developers information to help them identify the steps involved in gaining approval for proposed new electric generation projects or expansions of existing projects. As a guide, *New Power Generation in Alberta* is intended to help developers estimate time and cost factors associated with the approval process for their projects. It provides information on:

- Why Alberta's electric power generation industry was deregulated, what the new structure looks like, statistics on power generation and economic growth forecasts.
- The roles and relationships of the agencies involved in the approval process.
- Where to go to get the necessary approvals for new power projects.
- What information may be required by the different agencies granting approval.
- How to expedite the approval process.

New Power Generation in Alberta provides an overview of this information rather than an exhaustive listing of all requirements and actions that a potential developer may need to consider. Requirements, approvals, documentation and other matters may vary according to each project. They can only be fully determined through consultation with the agencies described in this guide.

Information for developers and other interested parties is also available on the Electricity Branch website at www.resdev.gov.ab.ca/electric/index.htm. The website provides information on restructuring of Alberta's electric power industry, the latest data on Alberta's generation capacity and new generation being added to the system. There are also direct links to key electric industry organizations.

The Alberta Department of Resource Development website at www.resdev.gov.ab.ca. includes background information on the Department, its structure and current initiatives. The Alberta Government website at www.gov.ab.ca includes access to Government statutes and regulations including the *Electric Utilities Act* and its associated Regulations.

The restructuring of Alberta's electric industry opened the doors to a competitive market for electric power generation across the Province. Barriers to entry into the generation market that existed in the former regulated structure, are being dismantled to allow independent power producers to compete on an equal basis.

In this new marketplace, the Alberta Energy and Utilities Board (AEUB) is no longer responsible for determining the need for new power generating facilities. That need is now determined by the open, non-discriminatory and competitive Alberta market where anyone can build new generation.

Producers can sell their power through the Power Pool of Alberta, which operates as an open-access competitive market for electric power. Prices are set every hour at the price that brings on enough supply to meet demand. An independent Power Pool Council governs the Pool and is responsible for its fair, safe and efficient operation.

An independent Transmission Administrator oversees the use of the transmission system to ensure fair rates, non-discriminatory access for all market participants and the safe, reliable operation of the system.

Distribution system owners will continue to operate their systems in a regulated environment overseen by the AEUB. Distribution system owners will file a Distribution Tariff for approval with the AEUB. This Distribution Tariff reflects the cost to customers for system access service to the transmission and distribution systems.

The Electric Utilities Act

The Electric Utilities Act (EUA) sets out the new structure of Alberta's electric industry. The Act introduces a system where the generation and retail sale of electric power are opened to competition and market forces.

Before the EUA, rates paid by consumers for electric power were approved by the Alberta Energy and Utilities Board (AEUB) or by municipal councils. Rates were set high enough to allow power generators to recover their costs and earn a reasonable return on their investment. This system focused on winning battles in costly regulatory hearings, rather than on creating cost-efficient operations.

In the deregulated environment created by the EUA, prices for electric power will be determined by an open and competitive market.

The AEUB was also responsible for determining whether proposed new generating capacity was required to meet provincial demand. The EUA ended the need for central planning of new generating facilities. Since 1996, new generation in Alberta has been built based on an open and competitive market.

The EUA created the Power Pool of Alberta to operate an open-access, competitive market for electric power bought and sold in the Province.

The EUA also created an independent Transmission Administrator which is responsible to ensure that access to the transmission system is fair, open, transparent and non-discriminatory and that the system operates in a safe and reliable manner.

Direct Sales

Market participants have an alternative to selling their energy through the Power Pool. Independent power producers may sell power directly to buyers such as industrial and commercial consumers. Buyers participating in direct sales must be able to satisfy certain conditions set out in the Direct Sales Regulation (AR 180/99) and the Power Pool of Alberta "Pool Rules". These include:

- Having time-of-use meters that accurately measure the amount of electricity consumed in each hour or portion of an hour.
- Ability to respond to direction from the System Controller to reduce consumption if required.
- A tariff that shows the cost of power purchases separately from other charges on the bill.
- System access from the distribution system owner. The distribution system owner obtains transmission system access from the Transmission Administrator.

Supply of Electric Power

In 1999, a total of 51,166,000 megawatt hours (MW.h) of electric power was demanded through the Power Pool of Alberta at an average price of $42.74 per MW.h.

More electric power will be needed in the coming years to handle forecast growth in Alberta. The Province's population, approaching three million, grew by over 9% over the five year period 1995-2000. With the lowest unemployment rate in Canada at 4.9% and a growing economy, Alberta will continue to attract migration from other parts of Canada, sustaining population growth over the coming years.

Alberta's Economic Performance

Alberta's strength is its diversified and competitive economy in which primary resources including energy, agriculture and forestry, share the spotlight with the expanding manufacturing, service and advanced technology sectors.

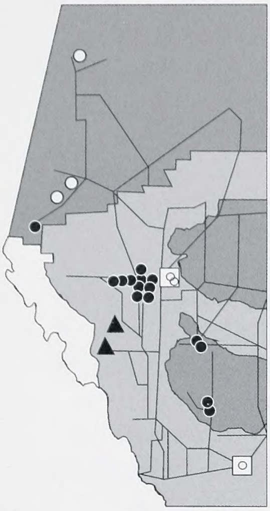
Alberta has had the strongest economy in Canada over the last five years with an average real rate of growth of 4.1% per year. This level of growth is expected to continue. Forecasts conclude that strong growth will be led by growing investment in oil sands, pipelines, petrochemicals, food processing, business services and the information-communications technology sector.

Plans have been announced to invest more than $21 billion to develop new oil sands projects and to expand existing facilities over the next five to ten years. Technological improvements and the provincial royalty regime have been major factors underlying the unprecedented increase in new oil sands investments.

In addition, the anticipated increase in bitumen and synthetic crude oil production is expected to require expanded pipeline infrastructure to new markets. Pipeline projects totaling over $6 billion have been proposed for the coming years.

Due to its abundant natural gas reserves, new technologies and expertise, Alberta's natural gas rates are among the lowest in North America. This helps to keep down the cost of producing electric power. It also encourages the growth of new cogeneration projects using natural gas as feedstock.

ALBERTA'S EXISTING GENERATION CAPACITY



1999 Capacity (Megawatts (MWs))	○ Coal	● Gas	▲ Hydro	Total
Utility Generation				
ATCO Electric	1,571	104	—	1,675
EPCOR	772	867	—	1,639
TransAlta Utilities	3.305	—	795	4,100
City of Medicine Hat	—	205	—	205
Total	**5,648**	**1,176**	**795**	**7,619**
Non-utility Generation				
Industrial				791
Small independent producers				185
New independent producers				366
Total				**1,342**
Interconnections				
British Columbia				800
Saskatchewan				150
Total				950

Power Pool of Alberta statistics: January 1 – December 31, 1999

GENERATION IN ALBERTA'S NEW MARKETPLACE

Cogeneration

Projects using cogeneration—the combined production of electric power and useful heat—account for a large share of Alberta's new capacity. The restructuring of Alberta's electric industry has opened the way for cogenerators to sell the electric power they produce through the Power Pool. Now any business can build new generating capacity in Alberta and sell its excess power freely in the market. This has attracted a number of cogeneration projects.

Combined Cycle Plants

A variation of the cogeneration process is combined cycle plants, which use a dual-approach to producing electric power. Power is produced from the initial generating process and the useful heat that is produced is in turn, used to operate a steam-driven generating process to produce more power. Combined cycle plants are attractive as an upgrade to single cycle plants to efficiently and cost-effectively use the heat byproduct from the power generating process.

Green Power

Alberta's new electric industry structure provides all electric power producers equal opportunity in the power generation market. This includes producers using renewable fuel sources as well as those using coal or natural gas.

As a result, a market is developing in Alberta for electric power from alternative sources such as wind, solar, hydro, biomass, peat and waste wood. Alberta is a leader in helping to launch development of renewable energy. For example, the 19 MW Cowley Ridge project in the Pincher Creek area is one of the largest operating wind farms in Canada.

Customers willing to pay a small premium may now request that a portion of their electric power be filled by "Green Power". Power suppliers in turn, purchase electric power produced by Green Power producers to meet their arrangements with customers.

Flare Gas

Electric power is also being generated from other non-traditional sources. One emerging trend is capturing waste gas from wells before it is flared and using it to generate electric power. Instead of this gas being flared and wasted, Alberta's new market creates opportunities for turning this by-product into a valuable resource.

A royalty waiver is now available on most solution gas when it is used to generate electric power instead of being flared. This encourages small-scale producers to use this resource productively. The royalty waiver removes a key economic hurdle to small-scale mini-turbine electricity production and encourages longer-term investments in new power generation.

A brochure entitled "Generation of Electric Power from Solution Gas Otherwise Flared" provides an overview of the approval process for flare gas generating facilities. The brochure is available from the Department of Resource Development, the AEUB and other approval granting agencies described in this guide.

Stand Alone Systems

If a power generating facility is being developed for the exclusive use of an owner who has no plans to supply excess power to the interconnected system, then some aspects of the approval process outlined in this guide may not apply.

Developers are advised to make inquiries to approval granting agencies to determine which approvals are required for their projects. Developers should also inquire about requirements for any approvals from these agencies in the future should developers later decide to sell power into the system.

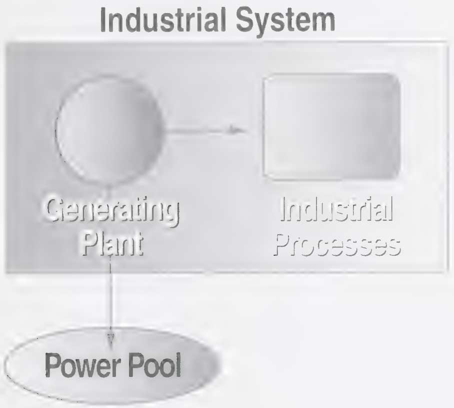
Small Power Generating Facilities

Smaller projects, generating facilities of less than 1 MW in rated capacity, may not need to obtain approvals from all agencies.

The AEUB has introduced a new one-page form for small generators called "The Application for a Small Generator – Less than 1MW". This form is included at the end of this guide. The form is also available from the AEUB website. Some smaller projects may not require approval from Alberta Environment. Discuss possible exemptions with Alberta Environment.

Industrial Systems

Many companies produce electric power for their own use as part of an integrated industrial process.



The electric power produced and consumed by industrial systems is exempted from some provisions of the EUA. For example, power produced by industrial systems does not have to be sold through the Power Pool, provided that it is used exclusively as the internal power supply for industrial processes. Industrial system owners may also sell excess power beyond what is used for internal electric power supply. Excess power from an industrial system would be exchanged through the Power Pool or sold through a direct sales agreement.

This exemption encourages integrated industrial systems to develop their own internal electric power supply, if that is the most economic source of generation. The exemption also helps to keep Alberta industry competitive and contributes to the power supply available to all Albertans.

The AEUB ensures that independent power generating systems are not developed simply to avoid paying a fair share of system costs. Businesses seeking an industrial systems classification for their power generation must obtain approval from the AEUB.

Transmission

The province-wide transmission system functions as a single entity and is overseen by an independent Transmission Administrator, who is responsible for ensuring that the transmission system is reliable and that access to the system is provided in a fair, open, transparent and non-discriminatory manner.

Open-access means that the transmission system is available to all power producers on the same terms. To access the Power Pool, all market participants must have a system access agreement with the Transmission Administrator.

The AEUB regulates transmission and distribution to ensure safe, reliable system services in the public interest. The AEUB is responsible for approving the system-access tariffs of the Transmission Administrator and the distribution tariffs of investor-owned distribution utilities.

These tariffs cover the cost of providing the high-voltage transmission system service and the cost of distributing electric power to the customer level on the low-voltage distribution system.

How Transmission is Paid For

The tariffs established by the Transmission Administrator are based on four key concepts:

- **"Postage-stamp rates" for Transmission**
  Distributors are charged the same tariff for transmission system service, no matter their location from power generating sources. This ensures that transmission rates paid by consumers are based on a system-access tariff that is independent of where they are located in the province.

- **Location-based Rates for Generators**
  The transmission rates charged to generators selling power into the system includes a standard charge plus a transmission line loss credit or charge. In special situations, the Transmission Administrator may create incentives for new generators to set-up in areas beneficial to the transmission system. This approach encourages suppliers to locate facilities for the maximum efficiency of the interconnected system.

- **System Support Services Costs**
  A transmission system depends on more than just power lines and transformers to deliver power. The system must also deliver power at stable voltages. It therefore requires support services such as "spinning reserve" and automatic generation control to maintain the system within narrow tolerances as load rises and falls. A transmission system also loses a certain amount of power in delivery across long distances. These costs are recovered through system-access tariffs.

- **Import and Export Rates**
  Importers and exporters of electricity pay a variable energy charge per megawatt-hour (MW.h) based on the current Transmission Administrator's tariff rate schedules for import service (IS) and export service (ES).

AGENCIES INVOLVED

Applicants are advised to contact each of the agencies involved in granting approval to construct and operate an electric power generating facility. This is important to ensure that applicants obtain the necessary approvals in a timely manner. Contact the:

- Local Municipal Authority
- Alberta Energy and Utilities Board
- Alberta Environment
- Transmission Administrator
- Power Pool of Alberta
- Local Distribution Company

When consulting with each agency, applicants may be asked to provide information about their proposed project. In turn, approval granting agencies will:

- Provide information about their approval processes and identify the required approvals and application forms.
- Provide information to help in estimating project timelines and costs.
- Assist the applicant to begin the process to bring new generation into service.

Municipalities and Local Authorities

A suggested first step in the approval process is to consult with the municipality, local district or county in which the proposed facility would be located. Municipalities and local authorities zone for land use and grant building permits and right-of-way access. Applicants may be required to complete an application process prior to receiving approval from local authorities.

Applicants should consult with local authorities to understand their approval process for land use and to obtain building permits and right-of-way access. Zoning rules, permits and other permissions may vary from one local authority to another. Consult with the local authority where the new power generating facility is to be constructed to:

- Obtain information on the application process.
- Determine land use and right-of-way requirements.
- Obtain building permits.
- Identify the need for land owner consultation.
- Determine requirements related to bringing electric power lines across municipal roadways and waterways.

The Alberta Energy and Utilities Board (AEUB)

The AEUB grants approvals for construction, connection and operation of new electric power generation and transmission facilities in Alberta. Before considering an application, the AEUB usually requires prior approval of the project from local authorities on land use and right-of-way authorization and approval on environmental matters from Alberta Environment. Consultation with the AEUB:

- Provides the AEUB with early notice of a potential application for approval to construct new generation facilities.
- Provides the applicant with information on the application and approval process and information requirements.

Inquiries about the approval process for new power generating facilities should be directed to the AEUB Utilities Branch in Calgary. View the AEUB website at ww.eub.gov.ab.ca. Also see "Guide 28 – Information Requirements for New Power Plant Applications" on that website.

Alberta Environment

Alberta Environment is responsible for protecting Alberta's air, water, fish, wildlife, forests, land and parks. Consultation with Alberta Environment:

- Provides Alberta Environment with early notice of a potential project and time to evaluate which requirements may apply.
- Provides applicants information on the Alberta Environment approval process including whether an Environmental Impact Assessment (EIA) report is required.
- Identifies potential environmental issues associated with the project.
- Identifies requirements for public consultation.

Alberta Environment has offices across the province. Office locations and other information are available on the Alberta Environment website: www.gov.ab.ca/env

Transmission Administrator

The Transmission Administrator is the provider of system access to Alberta's interconnected grid. Responsible for the safe, reliable and non-discriminatory access to the transmission system, applicants should consult with the Transmission Administrator to:

- Identify opportunities and locations for new generation along with possible transmission tariff implications such as credits or charges.
- Obtain information on the application process for transmission system access and the technical requirements for interconnection.
- Obtain preliminary cost estimates for transmission system access.

Additional information and application forms are available on the Transmission Administrator website at www.eal.ab.ca

Power Pool of Alberta

The Power Pool operates the exchange for electric power in Alberta. This market, where electric power is bought and sold, sets an hourly spot price for power. Participants in the Pool must be registered. Consult with the Power Pool for information on the:

- Requirements for Pool Participant status.
- Process and requirements for registering the new generating unit.
- Requirements for operational data (SCADA) metering.

The Pool recently created a Participant Liaison to respond to inquiries for information. Contact the Pool for further information. Also see the Power Pool website at www.powerpool.ab.ca

Local Distribution Company

The local distribution company will provide applicants with information on how to obtain distribution connection service. Distribution system connection will be needed by applicants intending to sell power into the market using the interconnected transmission grid. Contact the local distribution service provider.

Chart A shows an overview of the agencies involved in the approval process for new electric power generating facilities.

TIME REQUIRED FOR APPROVALS

The time required for approval of new electric power generating projects usually depends on two key factors:

- the scale and type of project
- whether the applicant uses a coordinated approach to consulting with approval granting agencies.

Although there are some mandatory requirements for all new proposed projects, the approval process typically depends on the scale and type of the proposed project. For example, smaller projects involving mini-turbines, wind generators and other small-scale operations, typically take less time to gain the necessary approvals than larger, more complicated projects.

Similarly, expansion of existing facilities usually takes less approval time than new projects. In the same way, projects that create fewer environmental impacts take less time in the approval process than projects creating greater environmental impacts.

Joint Application

New facility developers are advised to explore joint applications to the AEUB and Alberta Environment. Joint applications can expedite the approval process and ensure that the facility is commissioned in a timely manner.

Early and coordinated consultation with approval granting agencies may reduce the time and cost to obtaining approvals. A coordinated approach can also launch an integrated review process so that agencies can cooperate with each other to deliver approvals in a timely fashion. Early public consultation about the project will also facilitate the approval process.

Factors Affecting Approval Timelines

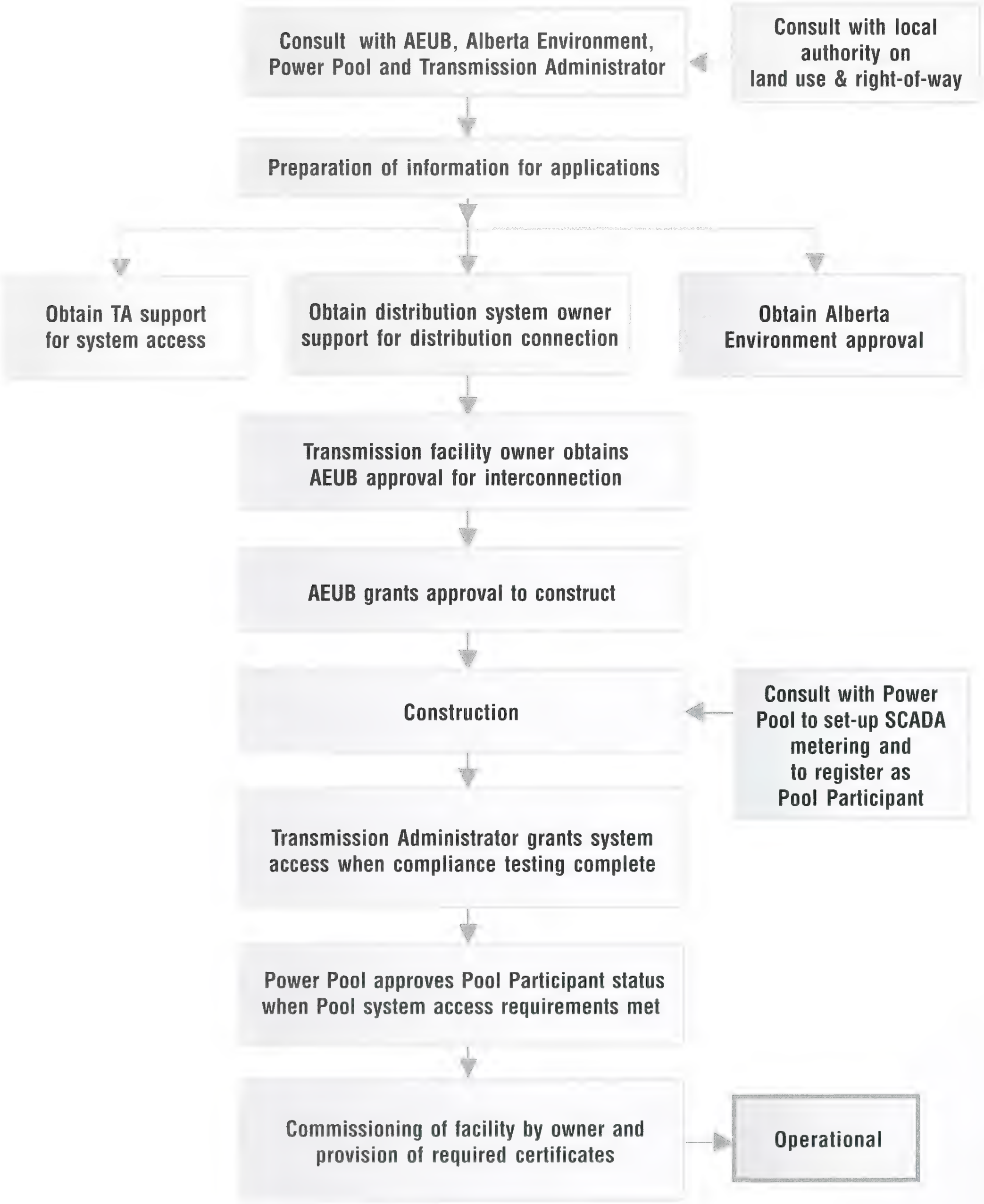
Planning time usually increases when:

- The project is new and not an expansion of existing facilities.
- The generation capacity is large and the project is complex.
- The project creates potential adverse environmental impacts and an Environmental Impact Assessment (EIA) report is required.
- The applicant has little experience with the approval process.
- Public consultation is extensive.
- A resolution on land use and right-of-way issues is required.
- Business arrangements are complex and require negotiation.
- Issues are raised in response to public notice which can not be quickly resolved.

Interconnection time is usually affected by:

- Location – transmission line availability.
- Lead time for large equipment such as transformers and breakers.
- Amount of time needed to obtain siting approval from the AEUB for transmission connection.

CHART A - OVERVIEW OF THE APPROVAL PROCESS


Consult with AEUB, Alberta Environment, Power Pool and Transmission Administrator
Consult with local authority on land use & right-of-way
Preparation of information for applications
Obtain TA support for system access
Obtain distribution system owner support for distribution connection
Obtain Alberta Environment approval
Transmission facility owner obtains AEUB approval for interconnection
AEUB grants approval to construct
Construction
Consult with Power Pool to set-up SCADA metering and to register as Pool Participant
Transmission Administrator grants system access when compliance testing complete
Power Pool approves Pool Participant status when Pool system access requirements met
Commissioning of facility by owner and provision of required certificates
Operational

The Utilities Branch of the AEUB works to ensure that the province's electric industry builds, operates and decommissions hydro developments, electric power plants and transmission lines in an efficient and economic manner. The Utilities Branch is also responsible for managing the approval process for development of new electric power generating facilities. *Chart B outlines the AEUB approval process.*

The *Hydro and Electric Energy Act* gives the AEUB authority to approve:

- Construction of an electric power generating facility (sec.9(1)).
- Construction of transmission facilities (secs.12-14) and system interconnection (sec.17).
- Construction of hydro power facilities (sec.7(1)).

The AEUB plays a coordinating role in the approval process for power generation projects. It works to ensure that all requirements for approval along with public consultation are undertaken by applicants.

Before making a decision concerning an application, the AEUB requires applicants to meet the following key requirements:

- Obtain approval from Alberta Environment.
- Obtain facility siting approval from the Transmission Administrator.
- Obtain a facility development permit from the local authority.

The AEUB can then proceed to consider the application. It is authorized under the *Hydro and Electric Energy Act* to issue the following approvals:

- Electric power generator construction and operation.
- Transmission construction.
- Interconnection construction.

Applicants must receive these approvals from the AEUB before constructing a power generating facility and before selling electric power into the interconnected system.

Applicants may choose to request all AEUB approvals at the same time or at different stages of the project. Applicants may also request the AEUB to consider a joint application process with Alberta Environment for approval of their project.

Documentation Required

Before granting approval, the AEUB may request the following documents:

- A summary of what environmental matters were addressed including a copy of the Environmental Impact Assessment (EIA) report if one was undertaken.
- Results of any public consultation.
- Confirmation of surface-access agreement with the site land owner.
- Confirmation from the Transmission Administrator that it supports the application for interconnection *(preferred).*

Chart C shows the information that applicants with larger projects may be asked to provide to the AEUB for approval to construct and connect an electric power generating facility.

Public Notice

As shown in Chart B, the AEUB may decide to give public notice on an application to build and operate an electric power generating facility.

The AEUB may determine that public notice is not necessary in cases involving mini-turbines, plants situated in remote areas or where extensive land owner consultations have already been undertaken.

Public notices usually appear in local newspapers and typically provide a minimum of ten days for filing objections.

The AEUB considers all objections unless they are determined to be frivolous or vexatious. Applicants are notified of any public objections submitted to the AEUB and have an opportunity to contact the concerned parties to resolve the issue.

The AEUB then reviews any unresolved objections and may decide to hold a Hearing. The AEUB has authority to decide whether applicants have adequately addressed objections raised by the public.

All objections and statements of concerns filed following a public notice must be addressed before the approval process proceeds. Before granting AEUB approval to begin construction, the AEUB will wait until Alberta Environment confirms it is prepared to grant approval.

Noise Assessment

Noise is a public concern. Noise associated with power generating facilities is assessed by the AEUB and local authorities. The AEUB requires a "Noise Impact Assessment" report (Noise Control Directive 99-8) for development of new permanent facilities or modifications to existing permanent facilities, where there is a reasonable expectation of a continuous noise source. The Noise Control Directive does not apply to temporary facilities which are not expected to remain in operation for more than two months.

The Noise Impact Assessment is intended to ensure that applicants consider possible noise impacts before a facility is built. This can be helpful to applicants since the cost of retrofitting may be significantly greater than the cost of noise mitigation measures included in the initial facility design.

To ensure compliance with the AEUB Noise Directive, Alberta Environment requires a noise assessment to be part of the Environmental Impact Assessment (EIA) report. The EIA report is then filed as part of the application to the AEUB.

Municipal and local government requirements concerning noise may vary. Applicants should contact their local authority for more details.

CHART B - AEUB APPROVAL PROCESS

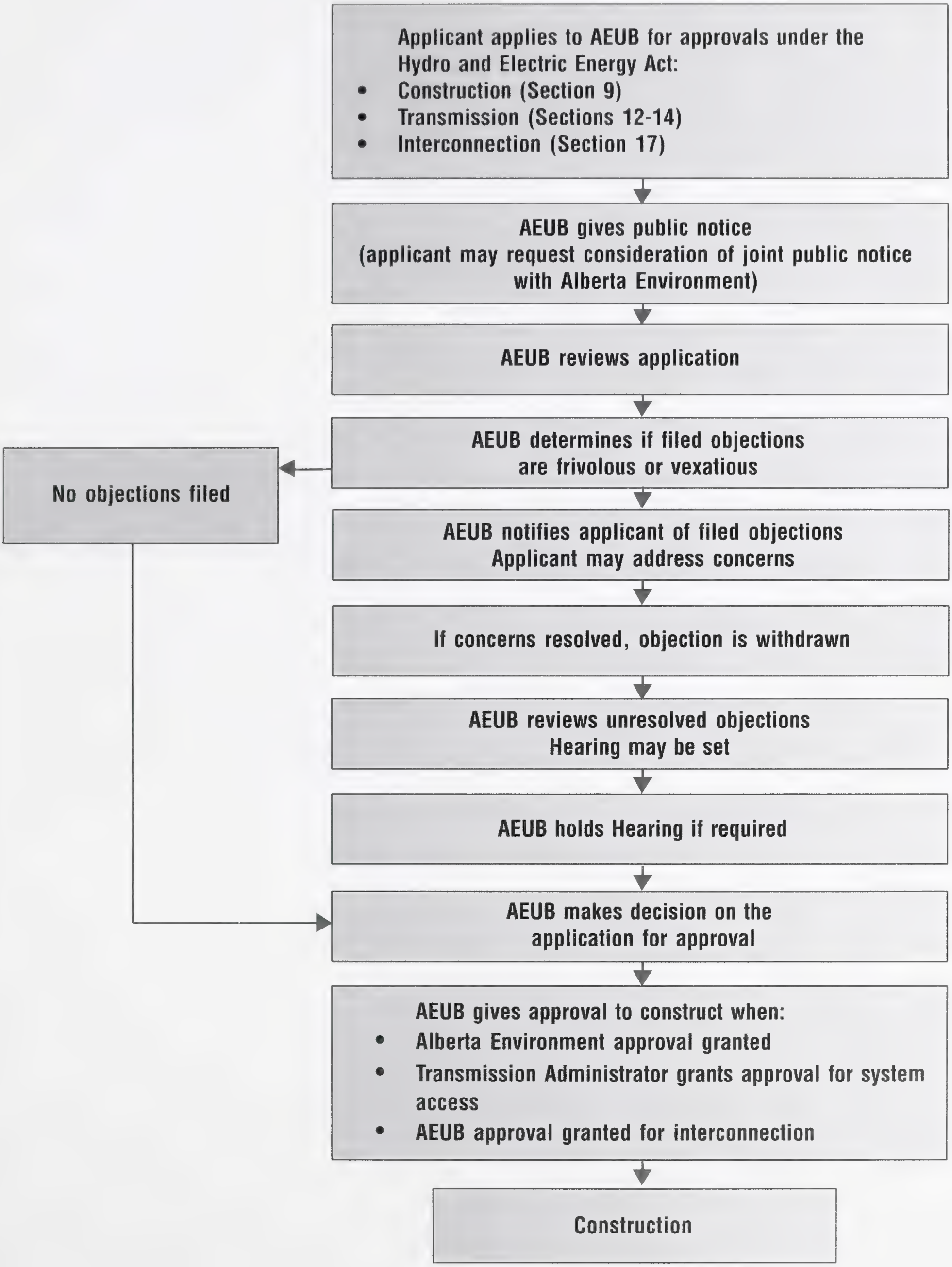

Applicant applies to AEUB for approvals under the Hydro and Electric Energy Act:
• Construction (Section 9)
• Transmission (Sections 12-14)
• Interconnection (Section 17)
AEUB gives public notice (applicant may request consideration of joint public notice with Alberta Environment)
AEUB reviews application
AEUB determines if filed objections are frivolous or vexatious
No objections filed
AEUB notifies applicant of filed objections Applicant may address concerns
If concerns resolved, objection is withdrawn
AEUB reviews unresolved objections Hearing may be set
AEUB holds Hearing if required
AEUB makes decision on the application for approval
AEUB gives approval to construct when:
• Alberta Environment approval granted
• Transmission Administrator grants approval for system access
• AEUB approval granted for interconnection
Construction

CHART C — PREPARATION OF INFORMATION FOR AEUB APPLICATIONS

General Information	(a) Name of owner/operator of the plant. (b) Description of the proposed project. (c) Section of the Hydro and Electric Utilities Act and/or Regulations application is made under.
Facility Details	(a) The role/purpose of the plant. (b) The legal description of the proposed plant site. (c) Summary of project capital costs. (d) Facility description including type, size and number of units. (e) Fuel used and sources of supply. (f) Construction schedule and expected power plant in-service date.
Public Consultation	(a) Description of public information programs. (b) List of adjacent landowners/occupants or other affected parties. (c) Summary of public consultation discussions and what concerns were identified. (d) Report of how stakeholder concerns were resolved. (e) Confirmation of surface-access agreement with plant site land owner.
Land Use	(a) Description of the project regional setting, including existing land use. (b) Discussion of potential siting and land use issues.
Environmental Information	(a) Summary of potential environmental impacts, mitigation measures and monitoring program. (b) Summary of environmental approvals required and applied for. (c) Confirmation if an EIA report is required by Alberta Environment. (d) Summary of Noise Impact Assessment (AEUB Directive 99-8).
Technical Operating Information	(a) Details of power plant substation. (b) Description of load to be supplied from the power plant. (c) Estimated plant heat rates and efficiency. (d) Fuel requirements of power plant, including fuel type, source, method of handling, transportation and any environmental effects. (e) Projected annual electric power production.
Maps and Drawings	(a) Plant site drawing with plans showing major power plant components. (b) Map/site plan of plant for public notice. (c) Electrical single-line diagram showing point of connection to utility.
Transmission Connection	(a) Results of preliminary discussions with Transmission Administrator on system access. (b) Results of preliminary discussions with the facility owner on system interconnection. (c) Utility company that plant will be connected to and connection voltage level. (d) Legal description of the point of connection.

Alberta Environment is charged with protecting Alberta's air, water, fish, wildlife, forests, land and parks. The Environment Protection Enhancement Act (EPEA) and its regulations identify activities that require approval.

STEPS IN THE ALBERTA ENVIRONMENT APPROVAL PROCESS

The current approval process operates to ensure that potential environmental impacts are identified early in the facility planning process, that potential impacts are satisfactorily mitigated and that opportunities for public consultation are provided.

The Alberta Environment approval process in Chart D shows the route to obtain approval which consists of five main steps:

1. Filing of application.
2. Review of the application.
3. Public notice.
4. Decision by an Alberta Environment Director on whether to issue approval.
5. Provision for appeal.

Preliminary Consultation

Environmental review is part of every approval issued under the EPEA to ensure that proposed projects do not cause an adverse impact on the environment.

As part of the preliminary consultation, an Alberta Environment Director will advise applicants about the details of the environmental review process for the proposed project.

After reviewing the application, the Alberta Environment Director may determine that environmental matters can be adequately addressed and that no EIA report is required. The applicant may then directly proceed to public notice and review for approval.

In special circumstances, the Director may require further assessment of environmental matters. In this event, applicants may be advised that an EIA report is required. Additional details on preparing an EIA report follow later in this Section.

Application for Alberta Environment Approval

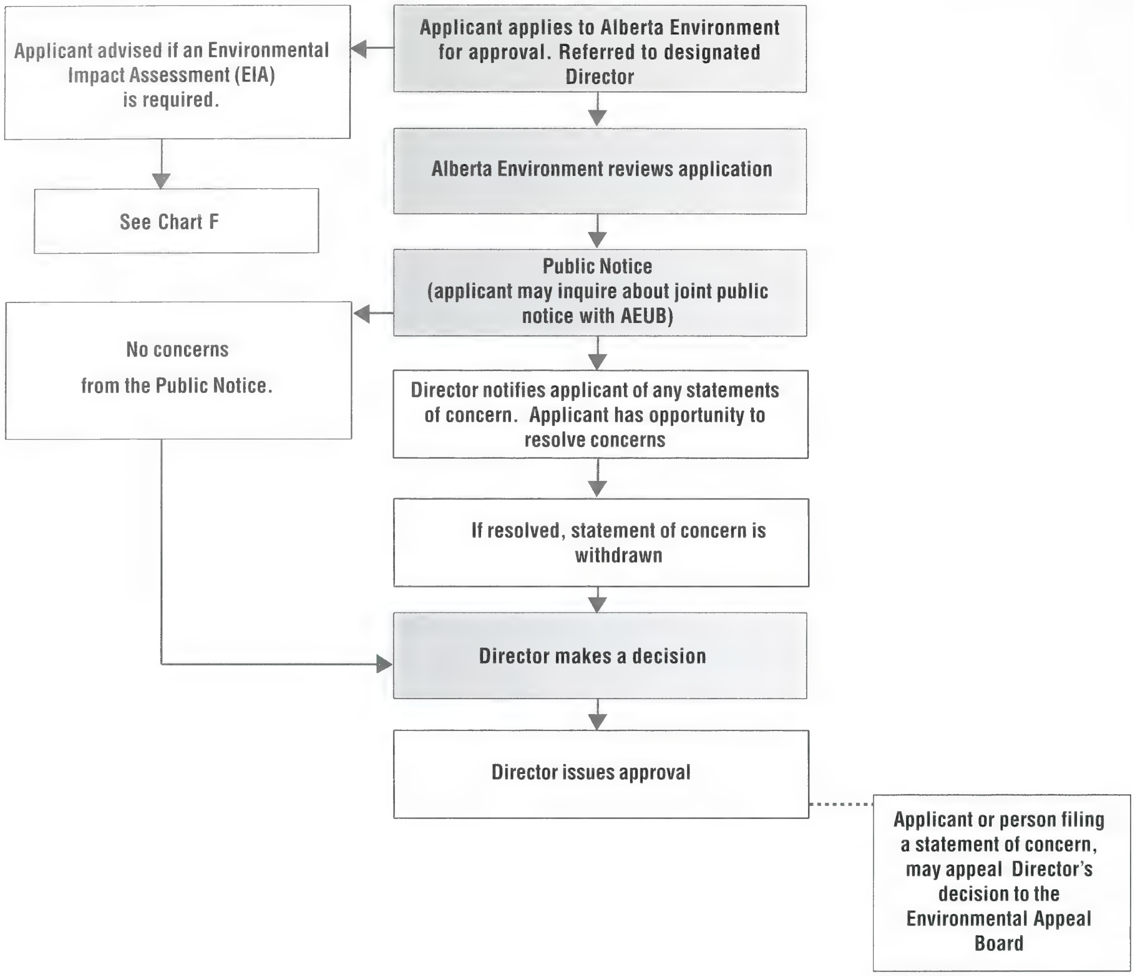
The standard information that should accompany applications for Alberta Environment approval is shown in Chart E. The Alberta Environment approval process works in parallel with the AEUB approval process to minimize regulatory duplication and ensure that both agencies are aware of the status of each other's approval processes.

Notice of Application

A public "Notice of Application" is required for all new proposed power generating facilities on the mandatory list in the Environmental Assessment (Mandatory and Exempted Activities) Regulation (AR 111/93).

The Notice of Application is typically placed in local newspapers to allow parties thirty days to submit a "statement of concern" about the proposed project. Applicants are notified of all statements of concern and have an opportunity to try to resolve these issues directly with the concerned party.

CHART D - ALBERTA ENVIRONMENT APPROVAL PROCESS


Applicant applies to Alberta Environment for approval. Referred to designated Director
Applicant advised if an Environmental Impact Assessment (EIA) is required.
See Chart F
Alberta Environment reviews application
Public Notice (applicant may inquire about joint public notice with AEUB)
No concerns from the Public Notice.
Director notifies applicant of any statements of concern. Applicant has opportunity to resolve concerns
If resolved, statement of concern is withdrawn
Director makes a decision
Director issues approval
Applicant or person filing a statement of concern, may appeal Director's decision to the Environmental Appeal Board

ALBERTA ENVIRONMENT APPROVAL

The Alberta Environment Director will make a decision on an application after reviewing the documentation provided and any statements of concern. The Director will consider whether statements of concern have been adequately addressed and whether the approval requirements for the project have been met. Applicants may be asked to address some specific concerns or provide additional information before approval is issued. In some cases, approval may include conditions such as limits on the release of substances or requirements for monitoring and reporting. Applicants or persons filing a statement of concern in response to the public notice, may appeal the Director's decision to the Environmental Appeal Board.

When the appropriate environmental assessment has been concluded, Alberta Environment issues approval and forwards notice to the AEUB that approval has been issued.

CHART E - INFORMATION FOR ALBERTA ENVIRONMENT APPLICATIONS

Administrative

1. Applicant name, address and other relevant contact information.
2. Location, capacity and size of the project.
3. Nature of the activity and any changes, amendments, additions or deletions to the activity.
4. If the applicant has applied for approval from the Alberta Energy and Utilities Board (AEUB) in relation to the activity and the date of the application.
5. Confirmation of whether an Environmental Impact Assessment (EIA) report is required.
6. Copies of existing approvals or registrations previously issued to the applicant under the Environment Protection Enhancement Act (EPEA) or a predecessor of the EPEA.
7. Proposed dates for start and completion of construction and beginning of operation.

Environmental

1. List of substances, the sources of the substances and the amount of each substance that will be released into the environment as a result of the activity or change to the activity; the method of substance release and the steps taken to reduce the amount released.
2. Summary of any environmental monitoring information.
3. Summary of the performance of substance release control systems used for the activity.
4. Justification for the release of substances into the environment as a result of the activity.
5. Measures that will be implemented to minimize the amount of waste produced, including a list of the wastes that may be produced, the quantities and the method of final disposition of them.
6. Any impact, including surface disturbance, that may/will result from the activity.
7. Confirmation that any required emergency response plans will be filed with the local authority where the activity is/will be carried out or with Alberta Public Safety Services.
8. Confirmation that contingency plans are in place to deal with an unforeseen release of substances into the environment.
9. A conservation and reclamation plan for the activity.

Other Information

1. Description of the public consultation undertaken or proposed by the applicant.
2. Information required under any other regulation under the EPEA to be submitted as part of or in support of the application.
3. Any other information required by an Alberta Environment Director, including information that is addressed in a standard code of practice or guideline in respect of the activity that is published or adopted by Alberta Environment.

(Source: Approvals and Registration Procedures Regulation (AR 216/96), Sec.3(1))

Is an EIA report required?

Preparation of an EIA report is the most comprehensive form of environmental review. The purpose of the environmental assessment process, as stated in the EPEA (sec 38) is:

- To support the goals of environmental protection and sustainable development.
- To integrate environmental protection and economic decisions at the earliest stages of planning an activity.
- To predict the environmental, social, economic and cultural consequences of a proposed activity and to assess plans to mitigate any adverse impacts resulting from the proposed activity.
- To provide for the involvement of the applicants, the public and government in the review of proposed activities.

Mandatory EIA Reports

The Environmental Assessment (Mandatory and Exempted Activities) Regulation (AR 111/93) identifies activities that require a mandatory EIA report for the construction, operation and reclamation of:

- A hydro-electric power generating plant with a capacity of 100 MWs or greater.
- A transmission line with a voltage of 500 kilovolts (kVs) or greater.

A recent amendment eliminated the requirement to conduct an EIA for approval of new thermal electric power generating plants with capacity of 100 MWs or greater, where the exclusive fuel type is natural gas or another gaseous fuel. The Environmental Assessment (Mandatory and Exempted Activities) Amendment Regulation (AR 88/2000) was approved in May 2000.

If an EIA report is not mandatory, an Alberta Environment Director may consider a number of related matters in deciding whether an EIA is appropriate including:

- Location, size and nature of the proposed activity.
- Complexity of the proposed activity and the technology to be used.
- Presence of similar activities in the same general area.

Preparing an EIA Report

Chart F shows the steps to complete an EIA.

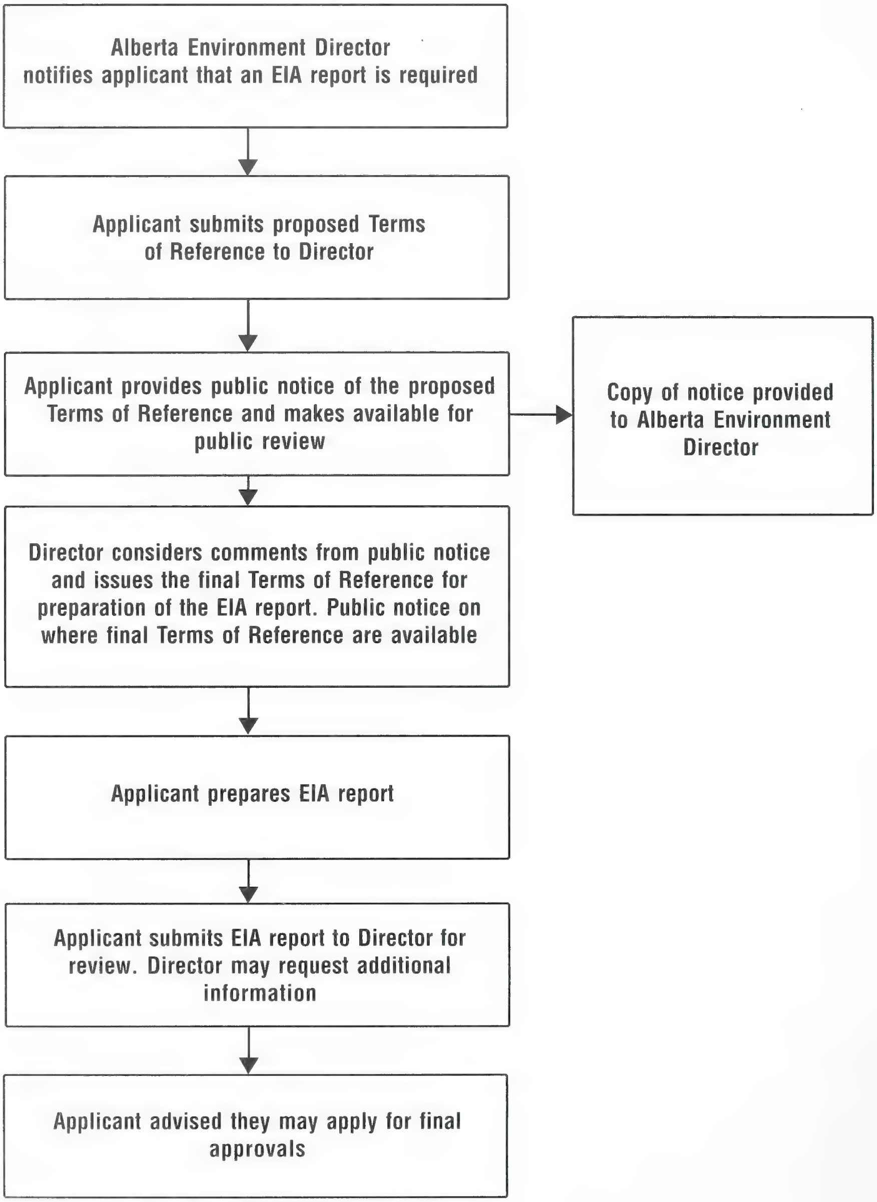
The first step is for the applicant to prepare the Terms of Reference for the EIA report. These terms are reviewed by an Alberta Environment Director and made available for public review and comment.

The Terms of Reference should describe how the EIA report requirements will be achieved and include the following general contents:

- A description of the proposed activity, such as the type of power generating facility.
- Analysis of the site selection procedure, including why the site was selected.
- Identification of existing environmental conditions that should be considered, including a description of potential environmental, social, economic, cultural and health-related effects from the proposed activity and their significance.
- Plans to reduce any potential negative impacts such as the release of substances that may have an adverse environmental effect, plans to monitor the proposed activity, contingency plans to respond to unpredicted negative effects and waste management.
- A plan for public consultation.

When all public comments are received and reviewed, the Director issues final Terms of Reference which the applicant will use in preparing the EIA report. These final Terms of Reference are also made available to the public. The completed EIA report is submitted to the Director for review. The Director may request additional information to complete the review. The Director may also request the applicant to publish the EIA report.

CHART F - STEPS IN PREPARING AN EIA REPORT


Alberta Environment Director notifies applicant that an EIA report is required
Applicant submits proposed Terms of Reference to Director
Applicant provides public notice of the proposed Terms of Reference and makes available for public review
Copy of notice provided to Alberta Environment Director
Director considers comments from public notice and issues the final Terms of Reference for preparation of the EIA report. Public notice on where final Terms of Reference are available
Applicant prepares EIA report
Applicant submits EIA report to Director for review. Director may request additional information
Applicant advised they may apply for final approvals

The independent Transmission Administrator authorizes system access to the interconnected grid. As the provider of system access service, the Transmission Administrator is responsible for ensuring that the transmission system is reliable and that access is open and non-discriminatory.

The Transmission Administrator has three roles in the overall approval process for new electric power generating facilities:

- To provide functional specification for interconnecting transmission facilities.
- To approve system access for supply and demand customers.
- To administer Western System Coordinating Council (WSCC) technical requirements for generators interconnected to the Alberta transmission system.

System Access

System access arrangements are required before a generating facility can be connected to the transmission grid. Applicants should make a preliminary inquiry to the Transmission Administrator to identify system access requirements and costs. Information required by the Transmission Administrator during these preliminary discussions includes:

- Location of the proposed facility.
- Size and generation load.
- Installation date.
- Any specific facility design criteria that may affect system access.

The Transmission Administrator then prepares a preliminary quotation for new service, which specifies capital costs, tariffs, losses and any other costs associated with special facility requirements. If the applicant wishes to proceed, a formal application for system access service is then made to the Transmission Administrator.

The Transmission Administrator will provide the applicant with details on the following functional specifications:

- Estimated cost for interconnection to the point of delivery (POD).
- Estimated capital cost contribution from the customer.
- Local facility charge for ongoing costs of operation and maintenance of new facilities.
- Losses charge or credit.

It is also recommended that applicants discuss system access with the Power Pool to ensure they can meet Pool system access requirements.

Interconnection

After a formal application is made, the Transmission Administrator develops a functional specification to meet the interconnection requirements of the applicant and the interconnecting transmission facility owner. The applicant can request a competitive process, a “request for proposal (RFP)”, for the construction of new transmission facilities or request the Transmission Administrator to assign construction to an existing transmission facility owner. The Transmission Administrator will work with the “RFP” winner or a transmission facility owner, concerning the timelines to meet the applicant’s in-service date.

The transmission facility owner prepares an application for AEUB approval of the new interconnection and forwards it to the Transmission Administrator for review of technical details. If it is satisfactory, the Transmission Administrator then submits a letter to the AEUB endorsing the application for interconnection.

The transmission facility owner then submits its application for interconnection to the AEUB for approval. The *Hydro and Electric Utilities Act* (sec. 17) authorizes the AEUB to grant the permits and licenses to a generating facility owner and to the transmission facility owner for interconnection.

At the same time, the Transmission Administrator advises the Power Pool that system access service will be provided and that interconnection will be granted. This ensures that the Pool is aware of a new facility that may be participating in the exchange of power.

Final Settlement

The amount that an applicant will pay for interconnection depends on the location of the new facility in relation to the grid system and the generating capacity of the facility.

Two system contracts need to be finalized between the Transmission Administrator, the distribution company providing system service and the applicant:

- A Supply Transmission Service Agreement is signed by the applicant and the Transmission Administrator for the supply of electric power to the transmission system.

- A Demand Transmission Service Agreement is signed by the Transmission Administrator and the distribution company in the area. The applicant signs an agreement with the distribution company providing system access service to deliver the electric power requirements of the applicant.

- If the applicant has been designated as an Industrial System by the AEUB, the Transmission Administrator and the applicant sign the Demand Transmission Service Agreement.

When construction of the facility is completed, the Transmission Administrator provides an "energization certificate" to the applicant, the transmission facility owner and the Power Pool. This grants 'temporary' full system access service, allowing the applicant to begin generating power and arranging for sale through the Power Pool.

The applicant must satisfactorily complete compliance testing of the generating facility before the Transmission Administrator will issue a "take over certificate". This grants the facility 'full' system access and enables the applicant to become a Pool Participant.

The Power Pool must also confirm that the applicant has met the Pool's participant requirements, including the provision of operational data (SCADA) metering.

When the requirements of both the Power Pool and Transmission Administrator are met, the applicant is positioned to generate into the transmission system and sell power through the Power Pool or negotiate a direct sale agreement.

The Power Pool of Alberta began operations in 1996 as a not-for-profit corporation that recovers its operating costs through a trading charge. The Power Pool's mission is to operate independent, fair, open and efficient markets for the exchange of electric power. The Power Pool:

- Operates a market run by the Power Pool Administrator that sets the hourly spot price.
- Carries-out dispatch in real-time, including dispatch of direct (bilateral) sales.
- Performs financial settlement for the spot market and for any imbalances in scheduled direct sales.

The Power Pool is also responsible for market surveillance. The Market Surveillance Administrator (MSA) oversees electric power market activities to discourage non-competitive practices and to ensure that market participants comply with the regulations and rules of participating in the Alberta electric power market.

Pool Participation

Only registered Pool Participants can sell electric power through the Pool's spot market or participate in a direct sale. Applicants interested in joining the Pool must complete an application form, sign an agreement to adhere to the Pool Rules and Code of Practice and pay the annual participation fee (currently $150 plus GST). Applicants are also levied a "trading charge" by the Pool, currently set at 6.6 cents/MW.h.

To become a Pool Participant and therefore eligible for Pool dispatch, applicants must arrange for transmission access with the Transmission Administrator and comply with the Pool's connection requirements. These requirements are detailed in a document available from the Power Pool called "New Generation Connection Requirements."

Operations and Standards

In addition to participation requirements, the Pool Rules govern operational matters such as making offers to supply power into the Pool, scheduling, dispatching and settlement. Other rules cover information exchange, Pool surveillance, resolution of disputes and system support services. These are similar to by-laws that govern the conduct of organizations. Similarly, the Pool's Code of Practice sets out standards of performance concerning submission of offers, scheduling, dispatch, system support and emergencies.

The Pool website www.powerpool.ab.ca contains a number of documents that may be useful to Pool Participants. These include:

- Power Pool of Alberta Standards for Facility Connections.
- Power Pool Participant Manual.
- Power Pool Rules and Code of Practice.
- Power Pool Participant Application, Registration and Participant Agreement forms.

The Participant Manual consolidates most of the information that applicants need to get started and apply for registration as a Pool Participant.

Applicants that plan to sell power into the interconnected system should consult with the Power Pool concerning operational data (SCADA) metering, to ensure that a new generating facility meets the required standards. All generating facilities must meet these standards to be eligible to dispatch power into the Pool.

AEUB Approval to Construct

Delegated AEUB staff may approve routine applications. In some cases an AEUB Board Hearing will examine the application and make a decision on approval.

If an application is approved, the AEUB issues an approval to construct. At the same time, approval may also be given for transmission and interconnection if applied for, as shown in Chart G.

For hydro-electric projects, a government Act is currently required before the AEUB can approve construction (*Hydro and Electric Utilities Act,* sec.7(11)). This requirement may be reviewed in the future.

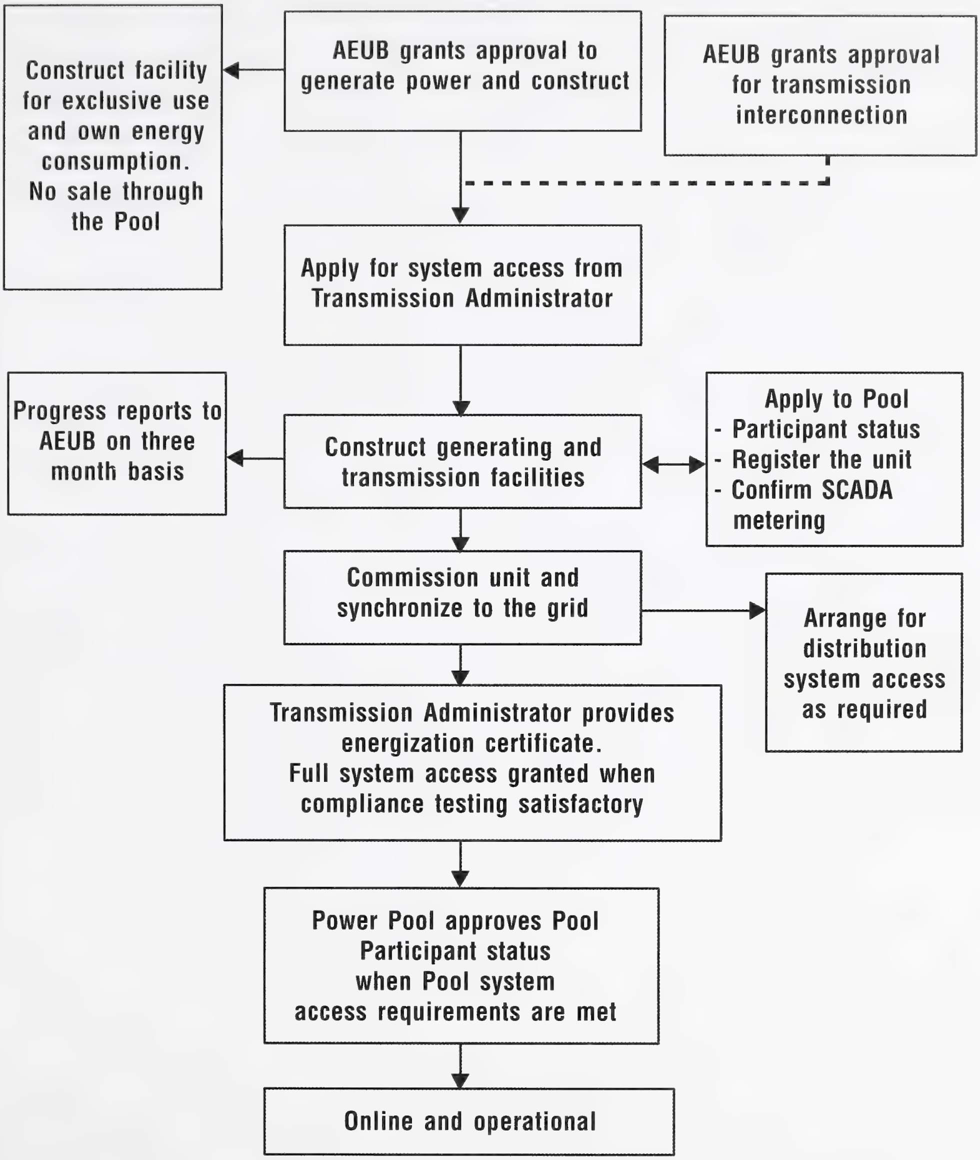
Construction and Commissioning

Construction of the new generating facility may proceed after the applicant has received approvals from the AEUB and Alberta Environment.

When construction is completed, the unit can be commissioned and synchronized to the electrical grid. Compliance testing is required by the Transmission Administrator and when acceptable, the Transmission Administrator authorizes full system access service. The Power Pool would then grant approval for Pool Participant status for the new generating facility owner once all Pool system access requirements are met.

Arrangements should be made for distribution system service if applicants want to sell power into the grid. Alternatively, if the facility will be grid-connected, then arrangements should be made with the Transmission Administrator during discussions on system access service.

CHART G - FINAL STEPS TOWARDS OPERATION


Construct facility for exclusive use and own energy consumption. No sale through the Pool
AEUB grants approval to generate power and construct
AEUB grants approval for transmission interconnection
Apply for system access from Transmission Administrator
Progress reports to AEUB on three month basis
Construct generating and transmission facilities
Apply to Pool
- Participant status
- Register the unit
- Confirm SCADA metering
Commission unit and synchronize to the grid
Arrange for distribution system access as required
Transmission Administrator provides energization certificate. Full system access granted when compliance testing satisfactory
Power Pool approves Pool Participant status when Pool system access requirements are met
Online and operational

FOR ADDITIONAL COPIES CONTACT:

Electricity Branch
Alberta Resource Development
5th Floor, Petroleum Plaza, North Tower
9945 108 Street
Edmonton, Alberta T5K 2G6

Telephone:	(780) 427-8177
Fax:	(780) 427-8065
Email:	electricity@resdev.gov.ab.ca

For toll-free access from anywhere in Alberta, dial 310-0000.

To place a call using your TDD equipment for the deaf and hearing impaired, call 427-9999 in Edmonton. Outside Edmonton, call 1-800-232-7215.

This document is also available on the Electricity Branch website at www.resdev.gov.ab.ca/electric

Copies are also available from:

Alberta Energy and Utilities Board
Information Services
640 5th Avenue SW Calgary
Telephone: (403) 297-8190
Internet: www.eub.gov.ab.ca

Alberta Energy and Utilities Board
Utilities Branch
10055 106 Street Edmonton
Telephone: (780) 427-4901
Internet: www.eub.gov.ab.ca

Power Pool of Alberta
McFarlane Tower
Suite 1800, 700 4th Avenue SW Calgary
Telephone: (403) 543-0380
Internet: www.powerpool.ab.ca

Transmission Administrator
ESBI Alberta Ltd.
Suite 900, 736 8th Avenue SW Calgary
Telephone: (403) 232-0944
Internet: www.eal.ab.ca

Alberta Environment
Information Centre
Main floor, 9920 108 Street Edmonton
Telephone: (780) 422-2079
Internet: www.gov.ab.ca/env

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APPLICATION FOR A SMALL GENERATOR - LESS THAN 1 MW

PURSUANT TO SECTIONS 9 & 17 OF THE HYDRO AND ELECTRIC ENERGY ACT

ADMINISTRATIVE MATTERS / REGISTRATION INFORMATION

Name of applicant: ______________________ Address: ______________________

Contact Person: ______________________ ______________________

Phone No.: ____________ Fax No.: ____________ Postal Code: ____________

Power Plant Operator/Owner: ______________________ Address: ______________________
(if different from the Applicant) ______________________

Contact Person: ______________________

Phone No.: ____________ Fax No.: ____________ Postal Code: ____________

Project Description

Plant description: ______________________

Legal description of the proposed plant site: ______________________

Name plate capacity: ______________ kW No. of units: ______________

Type of generator: ______________ Type of fuel: ______________

Projected annual electric production: ______________ kWh Expected Plant-in-Service date: ______________

Utility company to be connected to: ______________ Voltage level of connection: ______________

Energy produced solely to be used by power plant owner? ☐ Yes ☐ No

If no, energy other than that consumed by the owner is sold to (check one) ☐ Alberta Power Pool ☐ other customers

Agreement from the utility company for connection: ☐ Yes ☐ No

If yes, legal description of the connection point ______________________

If no, state how you would achieve connection to the Alberta Electric System ______________________

____

List approvals required by Alberta Environment, if any: ______________________

Attach the following supporting documents:

Plant Site Plot Plan and Single Line Diagram
EUB Noise Impact Assessment as per ID 99-8
Statement that applicant has conducted Public Involvement Program in accordance with IL 89-4 and that there are no public objections.

Signature: ______________________ Date ______________________

Alberta Energy and Utilities Board, Utilities Branch, 640 - 5 Avenue SW, Calgary, Alberta Canada T2P 3G4.

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